1. A clamping device for occluding a vessel during a surgical procedure, the clamping device comprising:

an internal core portion having a distal end with a sealing surface and opposite side surfaces comprising sealing surfaces adapted to be inserted transversely into the vessel through an incision in a wall of the vessel, and

an external clamping portion adapted to extend on the outside of the vessel, at least one of said core portion and said external clamping portion being movable with respect to the other to clamp the wall of the vessel between said internal core portion and said external clamping portion, said core portion being movable relative to said external clamping portion to adjust the length of said core portion within the vessel and to seat the sealing surface at the distal end against the vessel wall generally across from the incision.

2. The clamping device of claim 1, wherein said external clamping portion is slidably movable along said core portion.

3. The clamping device of claim 1, wherein said external clamping portion further comprises first and second pivotally connected vessel engagement arms, said vessel engagement arms having clamping surfaces configured to receive and clamp the vessel and said core portion therebetween when brought together to a clamped position.

4. The clamping device of claim 3 further comprising:

respective connecting elements on said first and second vessel engagement arms for connecting said arms to said core portion, and

an activating member coupled to one of said first and second arms and operable to move said one arm toward the other and to move said core portion longitudinally between said arms.

5. The clamping device of claim 4 further comprising:

a pair of said activating members coupled to said arms in the form of a scissor linkage which simultaneously moves said arms toward and away from one another and moves said core portion longitudinally with respect to said arms to facilitate seating the sealing surface of said distal end against the vessel wall.

6. The clamping device of claim 5, wherein said activating members further comprise manually operable members configured to be squeezed together to move said arms together with a clamping motion on the outside of the vessel.

7. The clamping device of claim 6 further comprising a ratchet mechanism coupled with said arms for locking said arms in a fixed position relative to one another and allowing selective application of clamping pressure to said vessel.

8. The clamping device of claim 1 further comprising a ratchet mechanism coupled with said clamping portion for locking said clamping portion in a fixed position relative to one another and allowing selective application of pressure to said vessel.

9. The clamping device of claim 1, wherein said core portion further includes at least one lumen for delivering a fluid from outside the vessel to within the vessel.

10. The clamping device of claim 1, wherein said core portion further includes two lumens for separately delivering blood and cardioplegia fluid to opposite sides of said core portion.

11. The clamping device of claim 1, wherein the internal core portion further includes a valve mechanism for selectively allowing fluid flow within the vessel between opposite sides of said internal core portion.

12. The clamping device of claim 1, wherein the internal core portion includes an inner portion having a first hardness and an outer portion having a second hardness less than the first hardness for contacting internal wall portions of the vessel, said outer portion including said opposite side surfaces and said sealing surface at said distal end.

13. The clamping device of claim 12, wherein said clamping portion includes outer portions having a first hardness and inner portions having a second hardness less than said first hardness, said inner portions of said clamping portion adapted to contact an outer surface of the vessel wall in opposed relation to the respective opposite side surfaces of said inner core portion.

14. The clamping device of claim 1, wherein said clamping portion further comprises:

first and second opposed vessel engagement arms having respective distal ends, said distal ends being curved toward one another to present curved inner surfaces configured to engage an opposite outer surface of said vessel from said incision when said first and second vessel engagement arms are in a clamped position on the vessel.

15. The clamping device of claim 14, wherein said distal ends include mating tips configured to engage one another in the clamped position.

16. The clamping device of claim 15, wherein said mating tips provide a self-centering action to longitudinally align said arms with each other in the clamped position.

17. The clamping device of claim 1, further comprising a sealing member retained for movement along said core portion and having an outer sealing surface configured to extend within the incision and seal against the vessel, said sealing member further including an inner sealing surface sealing against said core portion.

18. The clamping device of claim 17, further comprising a seating surface extending on said sealing member for seating an adjustment member associated with a purse string suture applied around the incision.

19. The clamping device of claim 1, wherein said core portion includes a plurality of sections and at least one section is longitudinally adjustable relative to another to adjust the length of said core portion within the vessel.

20. A clamping and fluid delivery device for occluding a vessel during a surgical procedure and for simultaneously delivering at least one fluid to said vessel, the clamping and fluid delivery device comprising:

first and second opposed vessel engagement arms having opposed sealing surfaces adapted to extend on the outside of the vessel and movable between clamped and unclamped positions, and

an internal core portion having a distal end with a sealing surface and opposite side surfaces comprising sealing surfaces, said internal core portion adapted to be inserted transversely into the vessel through an incision in a wall of the vessel and further configured to be received between said opposed vessel engagement arms when in the clamped position such that each of said sealing surfaces of said core portion sealingly engages the wall of the vessel to inhibit fluid flow across the core portion within the vessel and each of said sealing surfaces of said core portion is opposed by a respective sealing surface of one of said arms bearing against the outer surface of the vessel wall.

21. The clamping and fluid delivery device of claim 20, wherein said external clamping portion is slidably movable along said core portion.

22. The clamping and fluid delivery device of claim 20, wherein said first and second vessel engagement arms are pivotally coupled together.

23. The clamping and fluid delivery device of claim 20 further comprising:

respective connecting elements on said first and second vessel engagement arms for connecting said arms to said core portion, and

an activating member coupled to one of said first and second arms and operable to move said one arm toward the other and to move said core portion longitudinally between said arms.

24. The clamping and fluid delivery device of claim 23 further comprising:

a pair of said activating members coupled to said arms in the form of a scissor linkage which simultaneously moves said arms toward and away from one another and moves said core portion longitudinally with respect to said arms to facilitate seating the sealing surface of said distal end against the vessel wall.

25. The clamping and fluid delivery device of claim 24, wherein said activating members further comprise manually operable members configured to be squeezed together to move said arms together with a clamping motion on the outside of the vessel.

26. The clamping and fluid delivery device of claim 25 further comprising a ratchet mechanism coupled with said arms for locking said arms in a clamping position relative to said core portion and allowing selective application of clamping pressure to said vessel.

27. The clamping and fluid delivery device of claim 20 further comprising a ratchet mechanism coupled with said clamping portion for locking said clamping portion in a clamping position relative to said core portion and allowing selective application of pressure to said vessel.

28. The clamping and fluid delivery device of claim 20, wherein said core portion further includes at least one lumen for delivering a fluid from outside the vessel to within the vessel.

29. The clamping and fluid delivery device of claim 20, wherein said core portion further includes two lumens for separately delivering blood and cardioplegia fluid to opposite sides of said core portion.

30. The clamping and fluid delivery device of claim 20, wherein the internal core portion further includes a valve mechanism for selectively allowing fluid flow within the vessel between opposite sides of said internal core portion.

31. The clamping and fluid delivery device of claim 20, wherein the internal core portion includes an inner portion having a first hardness and an outer portion having a second hardness less than the first hardness for contacting internal wall portions of the vessel, said outer portion including said opposite side surfaces and said sealing surface at said distal end.

32. The clamping and fluid delivery device of claim 20, wherein each arm includes a supporting portion having an inner clamping surface formed of softer material than said supporting portion.

33. The clamping and fluid delivery device of claim 20, wherein said clamping portion further comprises:

first and second opposed vessel engagement arms having respective distal ends, said distal ends being curved toward one another to present curved inner surfaces configured to engage an opposite outer surface of said vessel from said incision when said first and second vessel engagement arms are in a clamped position on the vessel.

34. The clamping and fluid delivery device of claim 33, wherein said distal ends include mating tips configured to engage one another in the clamped position.

35. The clamping and fluid delivery device of claim 34, wherein said mating tips provide a self-centering action to longitudinally align said arms with each other in the clamped position.

36. The clamping and fluid delivery device of claim 20, further comprising a sealing member retained for movement along said core portion and having an outer sealing surface configured to extend within the incision and seal against the vessel, said sealing member further including an inner sealing surface sealing against said core portion.

37. The clamping and fluid delivery device of claim 36, further comprising a seating surface extending on said sealing member for seating an adjustment member associated with a purse string suture applied around the incision.

38. The clamping and fluid delivery device of claim 20, wherein said core portion includes a plurality of sections and at least one section is longitudinally adjustable relative to another to adjust the length of said core portion within the vessel.

39. The clamping and fluid delivery device of claim 20, wherein said lumen includes flow diverting structure for distributing the outflow of fluid along a predetermined length of said core portion.

40. The clamping and fluid delivery device of claim 20, wherein said lumen further comprises a hollow space within said core portion for receiving blood, and said hollow space further contains a second lumen for carrying cardioplegia fluid, said second lumen opening to an opposite side of said core portion relative to said hollow space.

41. The clamping and fluid delivery device of claim 40, wherein said second lumen is contained in a cannula carried within said hollow space and opening to a chamber within said core portion, said chamber being sealed from said hollow space and opening to said opposite side of said core portion.

42. A clamping device for occluding a vessel during a surgical procedure, the clamping device comprising:

an internal core portion adapted to be inserted transversely into the vessel through an incision in a wall of the vessel,

an external clamping portion adapted to extend on the outside surface of the vessel, at least one of the core portion and the external clamping portion being movable with respect to the other to clamp the wall of the vessel between the core portion and the external clamping portion, and

a seal member disposed for movement along said core portion and configured to seat against the vessel within the incision to inhibit fluid leakage from the vessel.

43. The clamping device of claim 42, wherein said seal member is coupled for sliding movement lengthwise along said core portion to allow movement toward and away from the incision.

44. The clamping device of claim 43 further comprising a dynamic seal disposed between said seal member and said core portion to allow sliding lengthwise movement of said seal member along said core portion.

45. The clamping device of claim 42 further comprising at least one seating surface extending on said seal member for engaging an adjustment member of a purse string suture applied around the incision and allowing said adjustment member to push against said seal member and hold said seal member in sealing engagement within the incision.

46. A clamping device for occluding a vessel during a surgical procedure, the clamping device comprising:

an internal core portion having a rounded distal sealing end adapted to be inserted transversely into the vessel through an incision in a wall of the vessel and to sealingly engage a portion of the wall generally across from the incision, and

an external clamping portion including first and second opposed vessel engagement arms adapted to extend on the outside of the vessel, at least one of said arms being movable toward the other into a clamped position to clamp the wall of the vessel between said internal core portion and said arms, said arms further including distal tips having internal clamping surfaces curved to generally follow the curvature of the rounded distal sealing end of said internal core portion when in the clamped position thereby effectively clamping the vessel while inhibiting the loosening or breakage of plaque retained on internal surfaces of the wall of the vessel.

47. The clamping device of claim 46, wherein said external clamping portion is slidably adjustable along said core portion.

48. The clamping device of claim 46, wherein said distal tips of said arms have mating tips that engage one another in the clamped position.

49. The clamping device of claim 48, wherein said complementary contours provide a self-centering action to longitudinally align said arms with each other in the clamped position.

50. The clamping device of claim 46, wherein the internal core portion further includes a valve mechanism for selectively allowing fluid flow within the vessel between opposite sides of said internal core portion.

51. The clamping device of claim 46, wherein the internal core portion includes an inner portion having a first hardness and an outer portion having a second hardness less than the first hardness for contacting internal wall portions of the vessel, said outer portion including opposite side surfaces and said distal sealing end.

52. The clamping device of claim 46 further comprising at least one fluid input for directing fluid into the vessel through said incision.

53. A clamping device for occluding a vessel during a surgical procedure, the clamping device comprising:

an internal core portion adapted to be inserted transversely into the vessel through an incision in a wall of the vessel,

an external clamping portion adapted to extend on the outside of the vessel, at least one of said core portion and said external clamping portion being movable with respect to the other to clamp the wall of the vessel between said internal core portion and said external clamping portion, and

a valve mechanism carried by said internal core portion for disposition within said vessel and for selectively allowing fluid flow within the vessel between opposite sides of said internal core portion.

54. The clamping device of claim 53, wherein said valve mechanism includes a slide valve member carried for sliding movement to selectively expose and block an opening in said internal core portion.

55. The clamping device of claim 53, wherein said valve mechanism includes a valve member carried for rotatable movement within said internal core portion to selectively expose and block an opening in said internal core portion.

56. A method of occluding a vessel in a patient undergoing a surgical procedure, the method comprising:

making an incision in a wall of the vessel,

inserting an internal core having a distal tip through the incision and into the vessel,

moving the core into the vessel until the distal tip contacts an interior portion of the vessel wall generally across from the incision,

placing an external clamp on an exterior side of the vessel wall, and

moving at least one of the internal core and the external clamp toward the other to clamp the vessel wall between the external clamp and opposite sides of the internal core and between the distal tip of the core and the clamp.

57. The method of claim 56 further comprising:

introducing a fluid into the vessel through the internal core.

58. The method of claim 57 further comprising:

introducing a first fluid on one of the opposite sides of the internal core, and

introducing a second fluid on the other of the opposite sides of the internal core.

59. The method of claim 56, wherein the moving steps further comprise:

relatively moving the distal tip of the internal core into contact with the interior portion of the vessel simultaneously with moving at least one of the internal core and the external clamp toward the other to clamp the vessel.

60. The method of claim 59 further comprising:

engaging the wall of the vessel at the incision with a seal member disposed on the internal core.

61. The method of claim 60 further comprising:

sliding the seal member along the internal core and into the incision.

62. The method of claim 56 wherein the internal core further includes a valve mechanism and the method further comprises:

operating the valve mechanism to regulate fluid flow from one of the opposite sides to the other.